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| **Gr. 12 Chemistry: Redox Reactions**  "The Chemical Chameleon"  **Learning Goals:**  **1.** To observe the manganese ionin its many different oxidative states.  **2.** To identify the oxidizing and reducing agent in a redox reaction.  **Chemical Reaction:**  MnO4-(aq) + C5H11O5**(C)-OH** + OH-  **-->** MnO2(s) + C5H11O5**(C=O)OH** | *(Insert Table here)*  **Summary Questions:**  1. Is the permanganate ion the **oxidizing agent** or **reducing agent**? How do you know?  Permanganate:  - Oxidizing agent  - Gains electrons and is itself reduced  Glucose:  - Reducing agent and is itself oxidized  - Loses |

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| **Solution Colour** | **Ion/Compound Present** | **Half Reaction** |
| **Purple** | **MnO4-** | MnO4- + e- → **MnO42-**    MnO4-2 + 2H2O + 2e- → **MnO2** + 4OH- |
| **Blue** | **Gradual colour change** asMnO4- turns into our next ion |
| **Green** | **MnO42-** |
| **Yellow** | **MnO2** |

**Summary Questions:**

**Q1.** What colours did you see and which ions do you think are responsible for each colour change?

**Q2.** By looking at the half-reactions, is permanganate the reducing agent or oxidizing agent? Explain.

**Q3.** If we had used tapwater instead distilled water, how would this have impacted our reaction?

(Ions in tapwater e.g. Ca2+, Na+ could potentially react with ions in reaction).